

Title (en)  
FIBER OPTIC EAR THERMOMETER

Publication  
**EP 0502277 A3 19930609 (EN)**

Application  
**EP 91310451 A 19911113**

Priority  
US 66429491 A 19910304

Abstract (en)  
[origin: EP0502277A2] A thermometer for measuring the core temperature of a body by measuring infrared radiation emitted by the tympanic membrane of the ear. The thermometer includes a fiber optic fiber bundle assembly which is inserted into the ear canal to a location adjacent to the tympanic membrane. Infrared radiation is conveyed to a thermopile which converts the radiation to an electrical signal. To assure an accurate signal in changing ambient temperature conditions, circuitry is provided which measures the thermopile resistance (heat) just prior and/or just subsequent to taking a temperature reading and nulling this signal. A disposable sheath is provided to cover the end of the fiber optic assembly inserted into the ear canal to prevent cross contamination between patients. The sheath includes an infrared radiation transparent window over the end of the fiber optic so that there are no openings in the sheath within the ear. Electronic circuitry is provided to measure and display input voltage characteristics, compensate for room temperature variations, fiber optic transmission variations and thermopile cold junction temperature variations, and display an accurate measured temperature. The temperature measured is displayed within about one second of initiation of temperature measurement.

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**G01J 5/02**; **G01J 5/14**

IPC 8 full level  
**A61B 5/01** (2006.01); **G01J 5/00** (2006.01); **G01J 5/04** (2006.01); **G01J 5/10** (2006.01); **G01K 13/00** (2006.01); **G01J 5/06** (2006.01); **G01J 5/08** (2006.01)

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Citation (search report)  
• [X] WO 9002521 A1 19900322 - TEMP STIK CORP [US], et al  
• [X] EP 0411121 A1 19910206 - NIPPON STEEL CORP [JP]  
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• [A] US 4993424 A 19910219 - SUSZYNSKI EDWARD D [US], et al  
• [A] PATENT ABSTRACTS OF JAPAN vol. 010, no. 334 (P-515)13 November 1986 & JP-A-61 138 130 ( MATSUSHITA ELECTRIC WORKS ) 25 June 1986  
• [A] PATENT ABSTRACTS OF JAPAN vol. 010, no. 049 (C-330)26 February 1986 & JP-A-60 195 029 ( HITACHI SEISAKUSHO )

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**EP 0502277 A2 19920909**; **EP 0502277 A3 19930609**; JP H06154173 A 19940603; US 5167235 A 19921201

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